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EXPLAINING THE SLOW DIFFUSION OF NEW RENEWABLE ENERGY IN THE ARGENTINE ELECTRICITY MARKET: A WRONG POLICY MIX OR AN UNFAVOURABLE CONTEXT?

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Overview

The production and consumption of electricity in Latin America has grown strongly in recent decades (about 4% per year) with an increasing share coming from fossil fuels, which has led to an increase in the carbon intensity of the electricity production. Large hydro still represents a substantial part of the electricity mix in most Latin-American countries. However, the construction of new dams has slowed mainly due to their local environmental consequences.
In the last decade, most of these countries showed a growing interest in developing renewable energy technologies (RETs) for power generation, especially wind, solar, biomass, geothermal and small hydroelectric dams. This interest is explained primarily by the need of diversifying the power mix and increase security of supply. Additionally, other policy objectives have been considered, such as the electrification of isolated rural areas, the decrease of energy imports, the creation of new jobs and the reduction of GHG emissions. The latter goal became especially important after the COP21 (Paris, 2015), in which most countries agreed to follow decarbonisation pathways for their economies which means, among other measures, an increased effort to develop green energy.
In this context, governments have set relatively ambitious targets and implemented public policies to encourage investment in RETs and thus take advantage of the great potential available. Different policy instruments have been implemented: tax exemptions, feed-in tariffs, feed-in premium, auction systems, tradable certificates, etc.
However, even though many years of government effort and public resources have been invested in order to speed up the development, diffusion and implementation of RETs, experiences in different countries show that this is a very slow process. The current share of RETs is still low (or extremely low depending on the country), especially when compared to the ambitions of policy objectives.
Support policies for RETs in Argentina is an interesting case to analyse the effectiveness of incentive mechanisms in a context of high risk perception. Recent experience in the electricity sector shows that the application of several theoretically effectives instruments did not produce the expected results despite the large potential available. Could it be explained by a failure in the design and implementation of the main promotion tools or by one unfavorable economic and institutional context and the related barriers?

Theoretical framework and method

There are two main Economic theories to explain the slow diffusion of RETs. The first is the neo-classical economic paradigm that highlights market failures as the main obstacle. Getting the prices right (by means of taxes, subsidies or similar measures) and public subsidies to compensate for private under-investments in RETs R&D are often proposed solutions. The second group of explanations is based on the evolutionary approaches coupled with a systemic and historical perspective of technological change (Maréchal, 2007). This paradigm highlights the systemic character of innovations and diffusion of new technologies. The technological lock-in process makes it unlikely that traditional cost-efficient measures aimed at internalising external cost will be sufficient to bring about the required radical changes in the field of energy, because they fail to address structural barriers. “Non-economic barriers”—institutional, technical, cultural—are thus an important part of the explanation and would require a wider range of policies
This paper analyses the interactions between policy tools and barriers from an historic and evolutionary perspective. After a theoretical introduction, it first explains the organization and functioning of the Argentine electricity market. Then, it analyzes the main policy instruments, their implementation and the various barriers that may determine the success or failure of the promotion policy. To achieve this, several step were performed: a deep literature review, an analysis of promotion laws and interviews with key stakeholders (investors, policy makers, energy analysts).

Results

Three main policy instruments have been implemented in the Argentine electricity sector to promote RETs:
- The first policy tools for wind and solar energy were approved in 1998 (Law 25.019). It was a feed-in premium system that guaranteed an additional payment above the market price for each kWh of energy produced and injected into the national interconnected grid. The law also provided some tax exemptions for wind and solar projects. Such a system failed due to the freeze on electricity tariffs that occurred after the deep devaluation in 2002. In fact, the imbalance generated by the frozen tariffs facing rapidly growing inflation misrepresented the basis of calculation of the grant. Thus, it provoked an insignificant payment and consequently the inapplicability of this incentive policy.
- In 2006 a new law on renewable energy was approved. It has set a target of 8% of electricity production from renewable sources (excluding large hydro) for 2016. To achieve this target, the new law provides incentives including tax exemptions and the payment of premium remuneration. In contrast to the regulatory approach adopted by Chile, the target of 8% in the Argentine law is only indicative, as "obligation" will fall on any particular actor. Moreover, regulation and law-enforcement only came in 2009, without real results.
- In 2010 the GENREN auction program was implemented. From this program, competitive auctions to incorporate 1000 MW of renewable power to the national electricity system were organised. In the first tender, projects representing 1,436 MW of total power were proposed, that is to say, an amount 40% higher than requested, which shows the initial great interest of investors in the program. However, most of these projects have yet to be realised.

The main obstacle encountered by companies responsible for the projects is the lack of access to financing. First, at the macro-economic level, the international funding of companies is directly affected by the high level of country risk, making it almost impossible to access credit at reasonable rates. Then, most of the participating companies do not have access to the guarantees required by national banks. CAMMESA - a company controlled by the State and responsible for payments of guaranteed prices - presents a balance sheet that does not meet the guarantees required by financial institutions concerning the completion of contracts signed in the field of GENREN project. The lack of confidence has settled despite the existence of guaranteed prices in American dollars with contracts up to 15 years. Thus, only firms with their own funds or with access to internal funding have materialised the renewable projects.

Conclusions

In the Argentinean case, the RET's deployment in the last 20 years was clearly affected by the institutional and economic context –with a big crisis in 2002 and the consequent public control of electricity tariffs. In this high-risk environment, investors have preferred to invest in more conventional and mature technologies or not invest at all. Moreover, we found several problems in the design and implementation of the two first policy instruments (feed-in premium system of 1998 and 2006). The GENREN program was a well-designed economic instrument but it was not accompanied by additional measures to facilitate the funding of projects, i.e. the promotion policies did not respond to the financial failure.

More generally, the results show that the malfunctioning of energy markets and also macroeconomic and institutional barriers may prove decisive for the success or failure of promotion policies. The isolated application of economic incentives (like feed-in tariffs, feed-in premium, etc.) may not be enough to promote investment in RETs, especially in developing and emerging countries with a high risk environment. Complementary measures are required: short, medium and long run energy planning, facilitate funding access, facilitate the grid integration of green electricity and education and information diffusion to increase awareness and citizens' participation in RETs projects.

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